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THE ROLE OF PUBLIC HEALTH INITIATIVES IN REDUCING THE BURDEN OF COMMON SKIN DISEASES GLOBAL PERSPECTIVE ON ACNE, PSORIASIS, ECZEMA, AND SKIN CANCER

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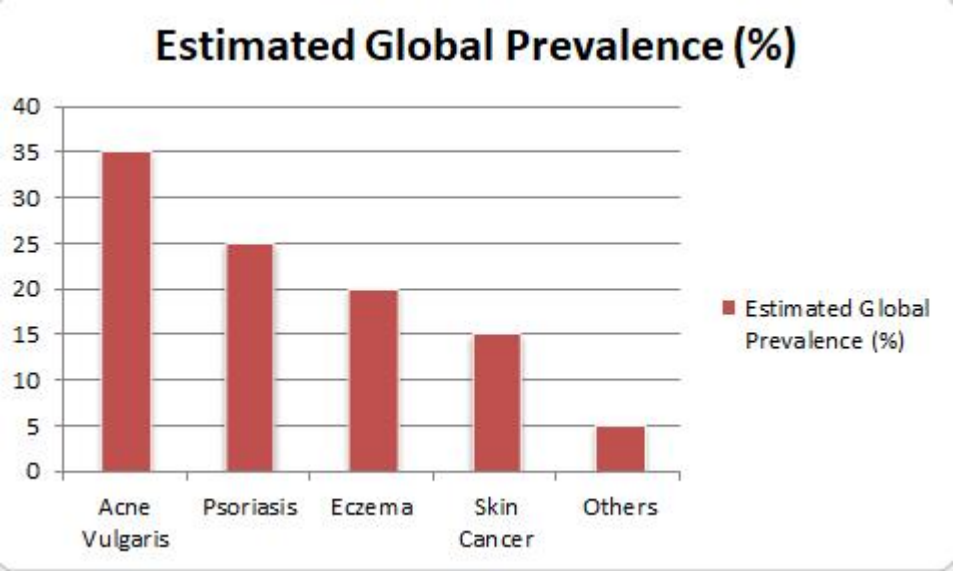
ABSTRACT

Skin diseases are a serious challenge to the global health systems because of the higher incidences that result in complications and poor quality of life. Skin conditions such as psoriasis, eczema, acne vulgaris, and skin cancer have a substantial impact on patient care and medical expenses. These burdens have been well managed by public health interventions aimed at prevention, early detection, and better health access, especially in the developing world. SunSmart in Australia or the National Eczema Association in the United States are good examples of programs where specific disease incidence rates have been lowered and patients' experiences improved by raising awareness and using community approaches. Still, there are some limitations in dermatological care in LMICs: shortage of resources and efforts, cultural taboos, and constrained health system construct. This review emphasizes the need for dermatology in primary healthcare services, increased awareness of three prevention strategies, and cultural factors. Concluding these gaps will speak great volumes as a step towards reducing the burden of skin diseases all over the world and ensuring equitable health for the affected population.

Keywords: *Public Health, Pimples, Rashes, Skin Disorders, Cancer.*

INTRODUCTION

The diseases affecting the skin are among the most complex challenges in the health of the community since they cut across all ages and wealth statuses. According to the World Health Organization (WHO), skin conditions are among the top cases of non-fatal disease production globally, each year, billions of people are affected. (WHO, 2018). These diseases contain a broad spectrum, ranging from asymptomatic, self-limited conditions to fatal, persistent, and frequently chronic syndromes that significantly reduce the quality of life and are frequently expensive to treat. Governing interventions for public health issues have been critical in reducing this burden by regulating prevention, treatment, and reporting of unethical care.



Graph 1: Global Distribution of Skin Diseases

The **graph 1** illustrates the estimated global prevalence of common skin diseases, highlighting acne vulgaris as the most prevalent (35%), followed by psoriasis (25%), eczema (20%), and skin cancer (15%). Other skin conditions collectively account for 5% of the global burden, showcasing the diverse impact of dermatological disorders worldwide.

Acne vulgaris is the most common skin disease in the world, with a prevalence rate of 9.4 %, and is prevalent in people of teenage and young adulthood age. This has made it very widespread, especially among young people; therefore, there is needs for intervention that will help young people avoid long-term issues such as low self-esteem and depression (Tan & Bhate, 2022). Measures like community education programs and dermatological care at an early stage have been very helpful in controlling this disease.

Figure 1: Showing the difference between the Psoriasis and Eczema.

This is a chronic illness that affects two out of every three people worldwide and is linked to depression, diabetes, and cardiovascular disease. Low disease understanding and new biological treatments in the general community were associated with improved disease control and improved patient prognosis (Armstrong et al., 2020). However, many people, particularly from the developing world, are still unable to

seek proper treatment as offered by those above improvements; this socially requires enhancement of the equity of health care delivery in the world.

Eczema is mainly manifested in children and is calculated at only 15-20% worldwide, especially in developed countries (Silverberg et al., 2019). Health promotion measures concerning the improvement of lifestyle and early intervention measures have helped to prevent complications of eczema in some regions.

Melanoma is on the increase globally, and ultraviolet radiation is the most well-known cause of skin cancer (Narayan et al., 2021). Skin cancers that are known to be preventable have been reduced among high-risk populations within societies thanks to advertising, sensitization campaigns, and legislation against the use of tanning beds (Narayan et al., 2021).

Table 1: Comparing the Acne Vulgaris and Skin Cancer along with Psoriasis and Eczema

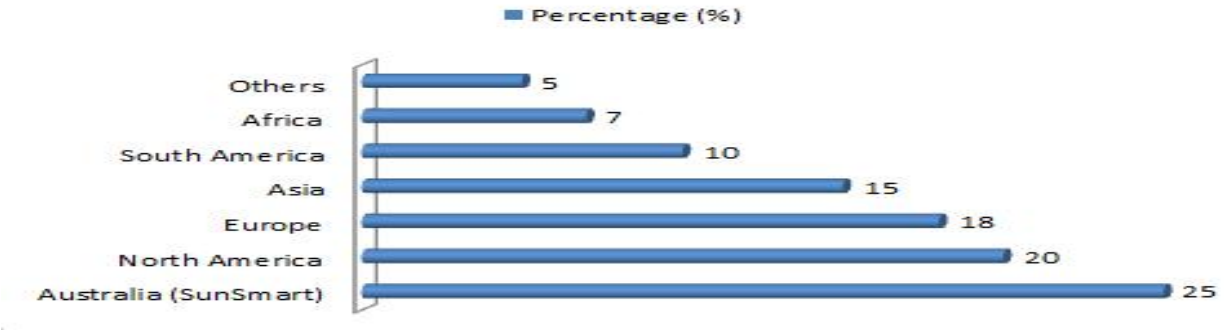
Condition	Appearance	Symptoms	Common Locations	Causes	Treatment
Psoriasis	Red, scaly patches with silvery scales. The skin may crack and bleed.	Itching, burning, or soreness.	Scalp, elbows, knees, lower back.	Autoimmune disorder causing skin cells to multiply too quickly. Genetic factors play a role.	Topical treatments (steroids, vitamin D analogs), phototherapy, systemic medications.
Eczema	Red, inflamed skin with dry, cracked areas and blisters.	Intense itching, dry skin, and rash.	Face, hands, behind knees, inside elbows.	Triggered by allergens, irritants, or environmental factors. Genetic factors and immune system response also play a role.	Topical creams (steroids, moisturizers), antihistamines, avoiding triggers.
Acne Vulgaris	Pimples, blackheads, whiteheads, cysts, and pustules.	Pimples, blackheads, whiteheads, pain, and swelling.	Face, chest, back, shoulders.	Hormonal changes, excess oil production, clogged pores, bacteria, genetics.	Topical treatments (benzoyl peroxide, salicylic acid), antibiotics, oral medications, retinoids.
Skin Cancer	Irregular moles or growths, often changing in size, color, or shape.	Itching, bleeding, or painful moles.	Sun-exposed areas (face, ears, neck, chest, arms, hands).	UV radiation from the sun or tanning beds, genetic factors.	Surgical removal, radiation therapy, immunotherapy, chemotherapy, and topical treatments.

Role of Public Health Initiatives

Preparations in public health have enhanced cardinal enhancements in the treatment of skin diseases due to the identification of preventable and medical obstacles to care. The proposed framework, The Global Burden of Skin Disease, which was developed in 2016, has been utilized to elaborate on the impacts of skin diseases on global health to advocate for enhancements of funding and policy attention towards dermatology (Gaines et al., 2020). Besides, there have been awareness creation programs such as World Skin Health Day to let people know what is beneficial for the skin system and when they should consult a doctor (Gaines et al., 2020).

Teledermatology, being a technological innovation, has transformed dermatological treatment by availing sophisticated diagnosis tools and personnel. Just as technologies like teledermatology have advocated for,

rural or remote mobile teledermatology has improved the rate of skin disease diagnosis and treatment, thereby not escalating disease progression and hence intolerance of current efforts to eradicate imbalances in care (Kwon et al., 2022). Such innovations have been made possible by public health initiatives that have increased the take-up of e-health solutions into care systems.



Graph 2: The Distribution of Preventive Public Health Initiatives

This horizontal **graph 2** represents the percentage distribution of public health initiatives targeting skin diseases across different regions. Australia (SunSmart) leads with 25%, followed by North America (20%), Europe (18%), Asia (15%), and South America (10%). Africa and other regions account for 7% and 5%, respectively, emphasizing regional disparities in dermatological health interventions.

Nevertheless, as shown in this paper, there are still hurdles to attaining equal health for skin disease. One of the factors that affect innovation is the inadequacy of funding coupled with a lack of culturally appropriate technologies and weak health systems in low and middle-income countries(LMICs). Research also indicates that if integrated, especially at the community level of development, it is possible to minimize these difficulties (Measuring Sustainable Human, 2023). for example, the use of efficiently trained and hired community health workers with a focus on skin disease has improved the results of skin diseases in rural settings, according to Hendricks et al. (2023).

Various physical-chemical and environmental conditions and S-E status

Social factors include pollution and climate change, which greatly contribute to the growth and intensification of skin diseases. That is why different processes like urbanization and rising temperatures lead to cases like eczema and skin cancer (Paller et al., 2021). Such an impact of climate change informs the call for public health interventions such as clean energy and sustainable cities (Paller et al., 2021).

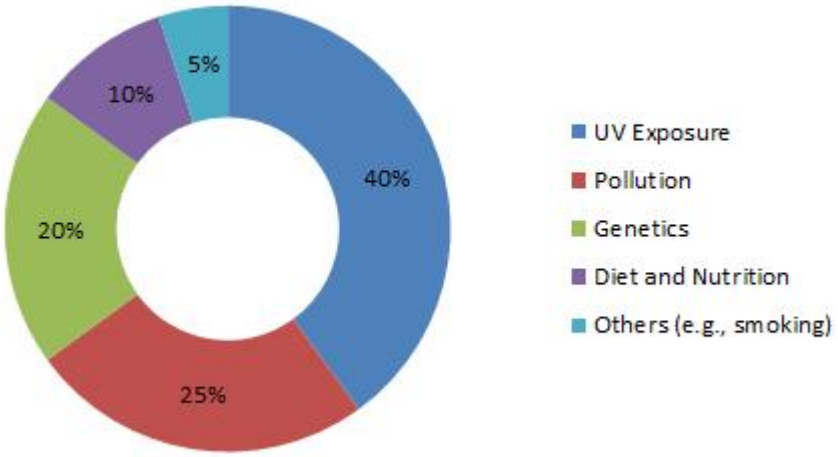
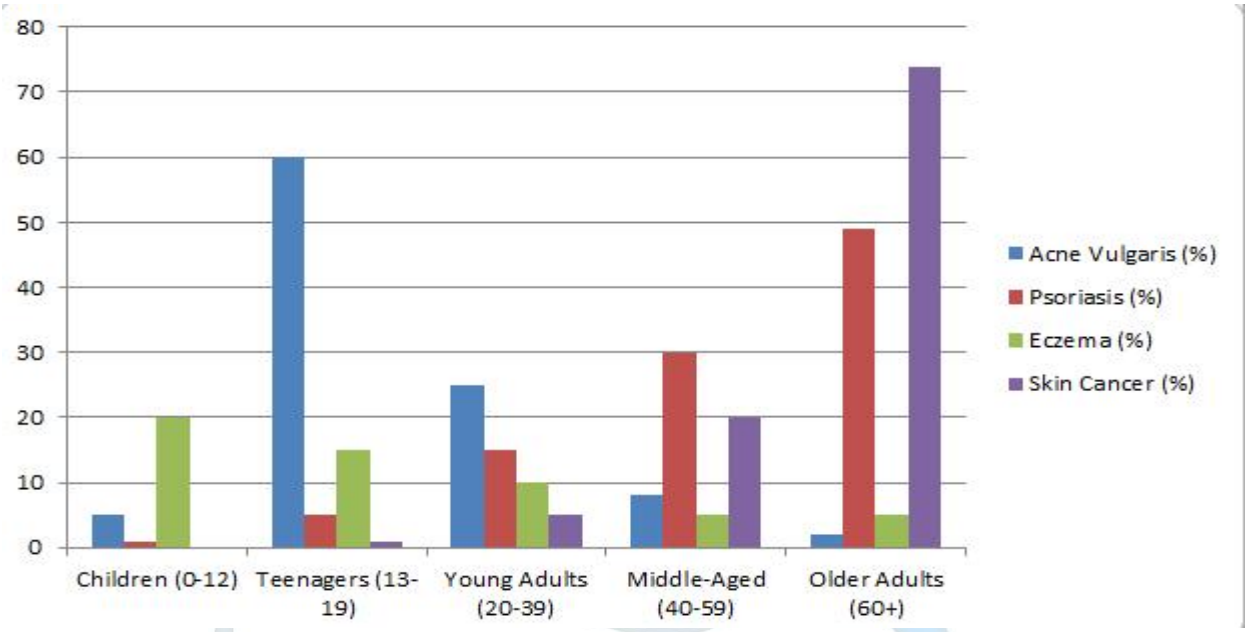


Figure: The Contribution of Environmental & Lifestyle Factors to Skin Diseases

This donut **graph 3** illustrates the contribution of environmental and lifestyle factors to skin disease prevalence. UV exposure is the leading factor at 40%, followed by pollution (25%), genetics (20%), diet and nutrition (10%), and other factors, such as smoking, at 5%.

The study also found that based on the sociodemographic characteristics of the respondents, diseases of skin have a higher prevalence and control among the less privileged population. Interventions aimed at structural SF derived from Hispanic ethnicity, employment, and housing status have demonstrated substantial reductions in skin disease incidence in poor populational levels (Smith et al., 2020). This largely requires comprehensive strategies from different governments, NGOs, and communities involved in the production of the commodities.



Graph 4: Prevalence of Specific skin Diseases by Age Group

This **graph 4** represents the prevalence of specific skin diseases across different age groups. Acne vulgaris predominantly affects teenagers (60%), while eczema is most common in children (20%). Psoriasis has a higher prevalence in middle-aged adults (30%), and skin cancer primarily impacts older adults (70%).

New Trends in Public Health

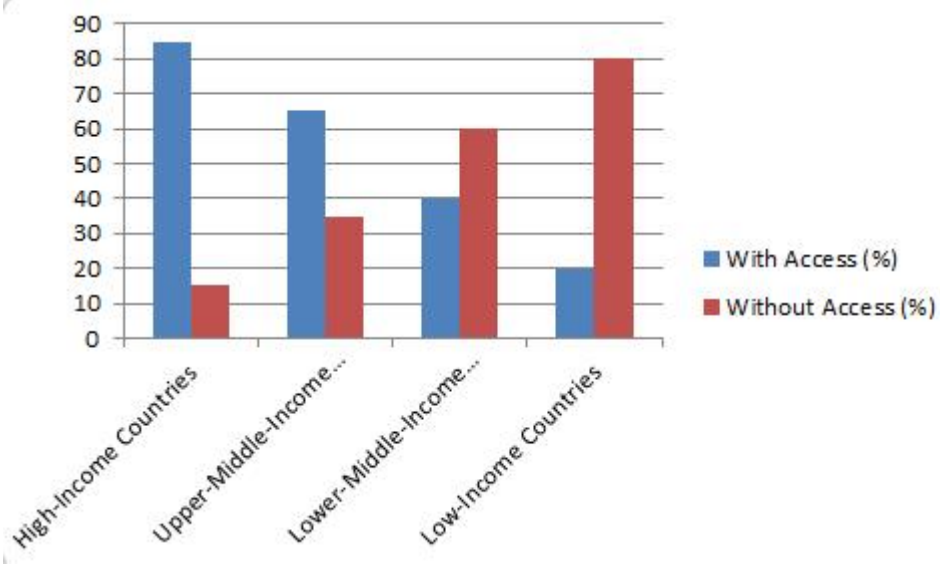
One such trend that recent studies have demonstrated is the great potential for achieving better public health through the adoption of artificial intelligence (AI) in dermatology. Moreover, in handling skin diseases, artificial intelligence has presented superior methods of diagnosing skin diseases as well as the diagnosis of skin diseases in regions that have insufficient resources (Kwon et al., 2022). Since such technologies are also involved in the enhancement of skin health management, the currently available policies that support the development and use of such technologies should also be enhanced.

On the same note, medicine has a concept of individualization; drugs like psoriasis and eczema creams that cause a reaction to individual genetic makeup have been found to work (Armstrong et al., 2020). Thus, the public health framework is needed to facilitate research and development on dermatological care.

Public health programs that have shown much promise in the reduction of skin disease burden in the world have made significant contributions in this area; hence, we have good examples that other parts of the world can adopt. In Australia, public skin cancer prevention, such as SunSmart, has played a useful role in raising awareness of the effects of UV rays. This subprogram contains mass media campaigns, class talks, and requirements for outdoor employees; it has played its part in reducing the incidence rate of melanoma in the younger generations of Australians over the last decades (Montague et al., 2021). Consequently, the NEA has upheld its role as the principal source of patient education and support, as well as advocacy in the United

States. Such have improved the understanding of illness and also involved the patient, enabling him/her to lessen the chances of such an episode and improve the quality of life (Silverberg et al., 2022). Globally, the WHO provides some of the major mainstream dermatology services for PHC, especially in the LMICs. For instance, in the wake of the Global Burden of Skin Disease Project, the WHO has assisted in providing technical support, training, and strategic direction for the most frequent skin disorders in providing better treatment through healthcare workers at the community level (Gaines et al., 2020). These success stories bring into focus the need for the use of an efficient and cheap case mix that can help advance skin healthcare activity efficiency and sustain improved results.

However, there are some barriers to and gaps in dermatologic treatment, population health prevention, and control, including the following: These include the following Insufficient quantity of dermatological appliances and the absence of a seed of professional dermatology. On its part, studies indicate that the low-income and most rural areas of the country experience a severe scarcity of dermatology practitioners; the patient, as a result, presents to a general practitioner who may not be aware of this situation and hence takes a longer time to refer a patient to a dermatologist, if available (Hendricks et al., 2023). Furthermore, most of the simple medications like Biologic for treating psoriasis or Encompass for treating atopic dermatitis are not used in areas of low health care systems, which will further decline disease outcomes (Smith et al., 2020).



Graph 5: The Socioeconomic Impact on Access to Dermatological Care

The **graph 5** illustrates the socioeconomic impact on access to dermatological care across income groups. High-income countries have the highest access to care (85%), while low-income countries face significant disparities, with only 20% having access. Upper-middle-income and lower-middle-income countries show intermediate levels of access at 65% and 40%, respectively.

One of the issues is the lack of research into the measures and policies that might prevent skin disorders. Whereas treatment may be stepped up sometimes, we realize measures fall short in the treatment of prevention, yet people forget to support causes that provide the body with signals to develop illnesses such as eczema or melanoma. For example, UV exposure preventive frameworks in areas such as the tropes are still as inadequate and poor as those from high-income countries, as seen in Narayan et al., 2021. The absence of this is suggestive of a call need to cobble together an international coalition to rank preventive dermatology.

Socioeconomics and culture also play a large role in any care that is possible or not possible. This is because access to early treatment is hampered by resources, especially in LMICs, which self-finance dermatological treatments (Silverberg et al., 2022). Stigma regarding the skin in cultures influences the chances of individuals with diseases that manifest through the skin, including psoriasis and eczema, neglecting to seek medical care for the ailment, and it becomes even more overwhelming psychologically (Armstrong et al., 2020). They can, therefore, only be addressed through a combination of awareness creation, patronage of

community-based care solutions, and government policies on the provision of equal access to affordable and quality health care to vulnerable groups of people.

In response to the challenges created in dermatological care, four specific recommendations are offered. First, teledermatology can reduce many costs and, in the end, raise the chance of being referred to a specialist for the patients in the regions, which is beneficial to solving a problem again. Those are the opportunities that can easily enhance usage and access to health requirements and also help deal with geographical barriers and issues that dictate the delivery of health requirements and the quality of the services offered to people. Moreover, more preventive research is crucial; pails for attempts at studying what might be done in attempts to find environmental and genetic risks for dermatological diseases and similar still good at close preventive mechanisms for those diseases. Improving the availability of health services is another objective; this can be achieved by equipping GPs with some rudimentary knowledge of dermatology and extending dermatological service to the primary care level so that the patient gets the right first contact attention.

Another source of change that also requires exclusion is socioeconomic; this will be affected through the formulation of policies that reduce the cost of dermatological procedures with special emphasis on the poor population. Last but not least is the creation of culturally satisfactory market awareness; this may play a big role in explaining such skin conditions and encouraging people to seek medical check-ups if they detect any defect on their skin. As shown above, all these efforts may assist in altering the approach to managing derm centers, as well as the patients' experiences and hospital access.

Discussion:

Acne, psoriasis, eczema, and skin cancer are worldwide existing skin diseases that require proper public health interventions (Pezzolo et al., 2020). Nevertheless, controversies and gaps remain in some specific aspects, and the progress that has been made includes quite laudable innovation and high-quality programs in some scenarios (Rajkumar et al., 2024). This discussion presents the dissertation with an overview of the research, describes the results of the efforts made to increase the effectiveness of interventions, presents the common issues from the analysis, and proposes recommendations for addressing the gaps in dermatology care.

Modern population-based activities in various countries, including Australia and the United States, are examples of how this kind of preventive mechanism can be implemented to address skin disease. For instance, SunSmart in Australia has considerably reduced melanoma cases by emphasizing preventive measures, such as shielding from UV rays and spread of early detection campaigns (Iannacone et al., 2014). Similarly, the National Eczema Association in the United States has emphasized patient education, advocacy, and information, resulting in better quality of life and treatment compliance on the part of the patient (Blocket al., 2018). These examples can help to mobilize an appropriate societal response through awareness and education, and to launch focussed interventions can go a long way in further reducing disease-associated morbidity is highlighted in the following sections. However, such performances have not been quite repeatable in Low-and Middle-Income Countries (LMICs) due to resource limitation problems.

One weakness is that dermatological facilities and personnel are scarce in developing countries; there is competition for these resources in the various sectors of health in these regions (Vonderschmitt et al., 2023). It is rare to find dermatologists; few diagnostic centers exist for skin diseases and delayed basic treatment hampers proper skin disease treatment (Knapp et al., 2020). This is even more risky, especially when the patient is using under-motivated GPs who are in the rural region. This implies that to reduce this gap, adequate support for teledermatology, training of other healthcare professionals in skin conditions, and increasing access to affordable skin treatments are relevant (Orlowski et al., 2016). Further, integrating dermatological services into primary health care, as WHO has promoted globally, could go a long way in expanding access to care in neglected regions (Strasser et al., 2020).

The last is the lack of knowledge concerning the preventive measures for a number of diseases; there are few scientific publications in this respect. The treatment to non communicable diseases, diseases that are not transmissible directly from one person to another, like psoriasis, and eczema has advanced since then; however, identification of the risk factors and how to minimize them remains under researched (Mphande et

al., 2020). For example, the protection campaigns, particularly in the areas of UV rays, are effective within developed nations, while such formulation is needed in countries experiencing high levels of sun exposure, including tropical countries, as noted by Roth et al. (2018). There is an increased need to enhance research in order to gain a better understanding of the environment and genetic risk factors that predispose skin diseases in order to enhance the specificity of preventive interventions according to different population groups (Prüss-Üstün et al., 2016).

These disparities are, however, accompanied by other socioeconomic and cultural factors. Of all the trends that remain a challenge to the affordability of health, cost remains the dominant issue; many people in LMICs refrain from seeking health care if they self-finance (Ferreira Simões et al., 2023). However, the cultural norms that require skin conditions such as psoriasis and eczema to be hidden from others make clients fail to go to the physician early enough, and thus, timeliness in receiving the first health care is hard to achieve. Some of the interventions must be culturally specific, where people can be educated on issues related to stigma as far as confidence in public health is concerned. In addition to this, the reduction of cost-causative agents is associated with the existence of health policies and cheap/low-cost derma therapies (Obeagu et al., 2024).

Despite the success stories, the dissemination and development of such interventions require a harmonized international effort. This observation by Milatet al., (2013) underscores the need for healthcare workers and scholars to work together in enhancing access to healthcare, focusing on preventive strategies, and addressing socio-cultural factors. This call for collaboration makes the audience feel included and part of a global effort to eradicate skin diseases and improve health equality.

Conclusion

Acne vulgaris, psoriasis, eczema, skin cancer, and other skin diseases are ranked high among diseases that are making a tremendous impact on the global disease burden and have significantly burdened people's quality of life. Measures by public health organizations seem to be successful in ensuring the burden of such diseases is considerably eased through launched prevention, early diagnosis, and treatment equality. For instance, the experience of Australia and the United States in the implementation of primary prevention interventions that are rooted in the availability of resources, including awareness creation campaigns and community-oriented measures, demonstrate a notion that intervention measures adopted can considerably affect disease prevalence and patient prognosis. However, challenges in dermatology care persist and are still present, especially in the LMIC, because there are limited resources, which are compounded by social stigma, and more profoundly, there are usually negligible skin healthcare facilities. Thus, there is another imperative and pressing need for further advancement of dermatological research, telemedicine practices in dermatology, and an aim to raise the number of prevention programs across dermatology, including for patients who face a lack of accessible dermatological services. Also, one must add that socioeconomic and cultural factors are absolutely important to address in order to guarantee that each patient has the best shot at trying to avoid coming down with skin diseases or receiving the necessary treatment. Multinational efforts from various sectors and disciplines in health and research and policymakers are therefore required to lessen those gaps and ultimately create sustainable skin health advancements.

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